

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

May 23, 2005

TO: Internal File

THRU: Peter H. Hess, Environmental Scientist III/Engineering, Team Lead

FROM: Steve M. Fluke, Reclamation Hydrogeologist

RE: SUFCO Midterm Review, Canyon Fuel Company, LLC., SUFCO Mine, C/041/002, Task ID #2068

SUMMARY:

The mid-term review for the SUFCO Mine was initiated on November 18, 2004. The review includes a review of the MRP to ensure that the plan contains commitments for application of the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flows outside of the permit area. A review of Chapter 7, Hydrology, revealed the following information should be updated in the MRP.

R645-301-731.211, -751, Text in Section 7.2.8.3 PHC Determination, Sediment Yield, needs to be updated with the TSS limits for 7-day and 30-day average discharge (p. 7-28).

R645-301-742.300, The diversion ditch list in Section 7.3.2.3, Diversions, describes two diversion ditches in Link Canyon for the reclaimed Substation No. 1 ditch and road swell. These two ditch descriptions need to be updated to reflect the reclaimed status of the Substation No. 1 area.

R645-301-742.300, The culvert description list in Section 7.4.2.3 is missing the culverts for the East Spring Canyon and Mud Spring Hollow bypass system. These culverts need to be added to the list to be complete.

R645-301-742.300, Section 7.4.2.3, Diversions, General Requirements, discusses drainages and diversions within the permit area. Drainage areas and diversions for the Link Canyon facilities are referenced to Plate 5-2D in this section. However, Plates 5-2E and 5-2F have been added to the MRP for the Substation No. 2 and the Link Canyon portal surface facilities, respectively. These plates also need to be referenced in Section 7.4.2.3.

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R645-301-742.200, A review of the ASCA list in Section 7.4.2, Sediment Control Measures, of the MRP revealed three ASCA descriptions that need updating: 1) the topsoil stockpile near the mine site sediment pond (ASCA #2) should also note containment berms as part of the sediment control; 2) the 4 East portal site (ASCA #8) should also note gravel as part of the sediment control; and 3) the Link Canyon Substation #1 facility (ASCA #9) should note that the facility has been reclaimed and that sediment control consists of containment berms, silt fencing, and vegetation (no gravel).

The SUFCO MRP contains commitments to use BTCA to prevent additional contributions of suspended solids to stream flows outside of the permit area. However, the midterm review should not be completed until the Permittee provides all required updates to the MRP to address deficiencies.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Water-Quality Standards And Effluent Limitations

The SUFCO Mine has three UPDES (Utah Pollution Discharge Elimination System) points permitted by the Utah Division of Water Quality (DWQ): UPDES 001 – emergency mine discharge point; UPDES 002 – discharge from the East Spring Canyon sediment pond; and UPDES 003 – discharge from the underground workings into the North Fork of Quitchupah Creek. Effluent limitations set by the permit include total suspended solids (TSS) limits of 70.0 mg/L for a daily maximum discharge, 35 mg/L for a 7-day average discharge, and 25 mg/L for a 30-day average discharge. Text in Section 7.2.8.3 PHC Determination, Sediment Yield, needs to be updated with the TSS limits for 7-day and 30-day average discharge (p. 7-28).

Diversions: General

All diversions within the permit area are temporary and have been designed to handle the 10-year/6-hour precipitation event of 1.3 inches. Diversions within the permit area consist of drainages (diversion ditches) and culverts. Diversions can be found at the facility area in East Spring Canyon, at the portal and substation areas in Link Canyon, and at the waste rock disposal site. According to the MRP, all diversions have been designed, located, constructed, maintained, and used (among other things) to prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area.

Diversions: Miscellaneous Flows

The mine's seventeen diversion ditches are listed in Section 7.3.2.3, Diversions, Diversion Ditches, and described in Section 7.4.2.3, Diversions, Diversion Ditches, of the MRP. The diversion ditch designs are summarized in Table 7-9. The first twelve diversion ditches listed are for the facility area in East Spring Canyon and appear to be accurately presented. The last five diversion ditches listed are for the Link Canyon substation areas and portal. The first two diversion ditches listed for Link Canyon refer to the reclaimed Substation No. 1 ditch and road swell. These two ditch descriptions need to be updated in Sections 7.3.2.3 and 7.4.2.3 and Table 7-9 to reflect the reclaimed status of the Substation No. 1 area. The remaining three Link Canyon diversion ditches appear to be accurately presented.

The mine's nine diversion culverts are listed in Section 7.3.2.3, Diversions, Diversion Culverts, and described in Section 7.4.2.3, Diversions, Diversion Culverts, of the MRP. The diversion culvert designs are summarized in Table 7-10. The culverts appear to be accurately described in Section 7.3.2.3 and Table 7-10. However, the description list in Section 7.4.2.3 is missing the culverts for the East Spring Canyon and Mud Spring Hollow bypass system. These culverts need to be added to the list in Section 7.4.2.3 to be complete.

Section 7.4.2.3, Diversions, *General Requirements*, discusses drainages and diversions within the permit area. Drainage areas and diversions for the Link Canyon facilities are referenced to Plate 5-2D in this section. However, Plates 5-2E and 5-2F have been added to the MRP for the Substation No. 2 and the Link Canyon portal surface facilities, respectively. These plates also need to be referenced in Section 7.4.2.3.

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Diversions: Perennial and Intermittent Streams

East Spring Canyon and Mud Spring Hollow are both intermittent streams and are the only perennial or intermittent streams diverted within the permit area. The stream flows are diverted under the fill of the mine facility by two large corrugated metal pipes. The diversion culverts are described in Sections 7.3.2.3 and 7.4.2.3.

Stream Buffer Zones

As stated in Section 7.3.1.6, Stream Buffer Zones, of the MRP, all perennial and intermittent streams in the mine area are protected by 100-foot stream buffer zones on either side of these streams.

Sediment Control Measures

Sediment control measures are designed to prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area; meet the more stringent of applicable State or Federal effluent limitations; and, minimize erosion to the extent possible. As stated in Section 7.3.2, Sediment Control Measures, the structures used for the runoff control plan for the permit area include disturbed and undisturbed area diversion channels, sedimentation ponds, containment berms, silt fences, and road diversion culverts. As outlined in the MRP text of Sections 7.3.2 and 7.4.2, and the calculations and design of sediment control structures presented in Appendices 7-8 through 7-15, these sediment control measures are designed using industry standards and what is generally considered the best technology currently available (BTCA).

Sediment Control Measures:[sm:]7] Alternative Sediment Control Areas (ASCAs)

There are eleven alternate sediment control areas (ASCAs) listed in Section 7.4.2 of the MRP that make up 3.256 acres of the permit area. The ASCAs as described in the MRP and implemented represent the Best Technology Currently Available (BTCA) in controlling sediment in areas that do not report to the sedimentation pond. However, a review of the ASCA list in the MRP revealed three ASCA descriptions that need updating: 1) the topsoil stockpile near the mine site sediment pond (ASCA #2) should also note containment berms as part of the sediment control; 2) the 4 East portal site (ASCA #8) should also note gravel as part of the sediment control; and 3) the Link Canyon Substation #1 facility (ASCA #9) should note that the facility

has been reclaimed and that sediment control consists of containment berms, silt fencing, and vegetation (no gravel).

Siltation Structures: General

Siltation structures within the permit area consist of three sedimentation ponds: the concrete sediment trap and main sedimentation pond located at the existing facility, and a sedimentation pond located at the waste rock disposal site. The operation and maintenance of the facility sedimentation ponds are described in Section 7.3.2.2 of the MRP and in Volume 3 of the MRP for the waste rock disposal site sedimentation pond.

Siltation Structures: Sedimentation Ponds

Siltation structures at the facility area consist of a concrete sediment trap and a sediment pond. The concrete sediment trap is designed to remove in excess of 65% of all solids from the disturbed area runoff before the water enters the main sedimentation pond in order to reduce its size. The sedimentation pond and concrete sediment trap were designed together to contain the volume of sediment equal to 0.1 acre-foot per acre of disturbed area. The sedimentation pond will fully contain the runoff from the 10-year/24-hour storm event and will adequately pass the 25-year/6-hour precipitation event through the emergency spillway.

The waste rock disposal site sedimentation pond was designed to contain a sediment volume to contain the volume of sediment equal to 0.0697 acre-foot per acre of disturbed area. The sedimentation pond will fully contain the runoff from the 10-year/24-hour storm event and will adequately pass the 25-year/6-hour precipitation event through the primary and emergency spillways.

Siltation Structures: Exemptions

The Small Area Exemption (SAE) consists of three disturbed areas classified as 'Exempt Areas' from siltation structures within the permit area: 1) the south side of the original substation pad area above the office building; 2) the spring collection field in Convulsion Canyon; and 3) the water tank area northeast of the mine site. The total area for SAE is 0.623 acres. The demonstration for the SAE is a SEDCAD computer program as shown in Appendix 7-16, Vol. 10 of the MRP.

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Discharge Structures

The discharge structures within the permit area consist of the primary and emergency spillways on each of the three sedimentation ponds. The spillway of the concrete sediment trap consists of an overflow weir which discharges to a 24-inch CMP culvert. The culvert drains directly to the main sedimentation pond. The primary spillway on the main sedimentation pond consists of a 12-inch steel riser with a covered oil-skimmer. The primary spillway discharges directly to the riprap lined emergency spillway channel below the pond. The emergency spillway on the waste rock disposal site sedimentation pond consists of a riprap-lined ditch of trapezoidal cross-section.

Findings:

The SUFCO MRP contains commitments to use the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flows outside of the permit area. BTCA means that the operator is employing the best methods available at any one time. However, a review of the Hydrologic Information of the MRP has identified needed updates and/or corrections that constitute deficiencies for this midterm review:

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RECOMMENDATIONS:

The SUFCO MRP contains commitments to use BTCA to prevent additional contributions of suspended solids to stream flows outside of the permit area. However, the midterm review should not be completed until the Permittee provides all required updates to the MRP to address deficiencies.